Inventories yield large benefits for Devils Postpile National Monument

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At Devils Postpile National Monument, inventory efforts are returning large benefits: 191 plant and 10 bat species were newly documented as the result of inventories in summer 2001. These numbers are even more impressive in light of this monument's small size. At just 800 acres, Devils Postpile is the smallest unit in the Sierra Nevada Network, which also includes Yosemite and Sequoia and Kings Canyon National Parks. The Sierra Nevada Network is one of 32 park networks within the NPS Inventory and Monitoring Program. Networks link parks with similar resources to facilitate collaboration, information sharing, and cost savings during the inventory process.

In undertaking the plant inventory, park staff developed two main objectives. First, they sought to inventory at least 90% of the vascular flora in the monument and document them with vouchered specimens or samples that have been verified by a specialist. Second, the inventory was designed to determine the distribution and abundance of plant species of special management concern, including rare and nonnative species.

Botanist Melanie Arnett, a graduate student, conducted the plant inventory through an innovative educational partnership with the Environmental Careers Organization. Sylvia Haultain, a plant ecologist with Sequoia and Kings Canyon National Parks, supervised the effort. The inventory raised the number of documented plant species for the monument from 169 to 360, an increase of 113%.

In summer 2001 the Sierra Nevada Network conducted vascular plant and bat inventories at Devils Postpile National Monument, a small park unit with limited previous inventory information. During the inventory, botanist Melanie Arnett cut off the seed heads of bull thistle plants and enclosed them in plastic bags before the plants were uprooted to prevent further spread of this invasive plant.

It also documented the abundance and distribution of three rare and eight nonnative species. Of the nonnatives, only bull thistle *(Cirsium vulgare)* appeared to be invasive. Invasive plants are a management concern because they are nonnative species that have or are likely to spread, creating self-sustaining populations that disrupt native plant communities. To prevent the spread of bull thistle into additional areas within the monument, Arnett and other staff undertook control measures on all populations encountered during the inventory.

The inventory yielded important scientific information that benefits institutions and scientists beyond the National Park Service. Arnett collected and prepared complete sets of voucher specimens for a number of collections and research facilities, including Devils Postpile, the Jepson Herbarium at the University of California at Berkeley, and the Rocky Mountain Herbarium in Laramie, Wyoming. The specimens will provide valuable information for future vegetation studies in the monument and surrounding areas. A manuscript describing the results of the study is being prepared.

In addition to the plant inventory, the Sierra Nevada Network contracted bat specialists Elizabeth Pierson and William Rainey to do a preliminary bat survey in Devils Postpile in late August 2001. Through a combination of mist-netting and acoustic sampling over just two days, 10 species of bats were added to the monument's vertebrate list, which included no bats before this study. Of the 10 species found during the preliminary inventory, 5 are listed as federal or state species of special concern.

The information gained from the baseline inventories will assist parks in the Sierra Nevada Network with numerous resource management and planning activities. This information will help NPS staff develop long-term control efforts for nonnative plants in the monument and revise its outdated resource management plan. As park staff work to develop indicators for monitoring the health of the monument's natural systems, inventory information will be critical for identifying and prioritizing vital signs for a network-level, long-term monitoring program. High-quality information about the plants and animals that make their homes in parks also enriches the information available to the public.